NOTES.

THE arrangements for the meeting of the International Association of Seismology are now nearly complete. The following foreign States will be represented:—United States, France, Russia, Austria, Germany, Hungary, Belgium, Switzerland, Spain, Greece, Italy, Holland, Rumania, Servia, Bulgaria, and probably also Japan and Norway. At the opening meeting on July 18 the Lord Mayor of Manchester and the Vice-Chancellor of the University will welcome the delegates, and Prof. Schuster, as president, will deliver a short address. On the same day the Lord Mayor will hold a reception in the Town Hall. The council of the University will give a dinner, and Dr. Shaw, the director of the Meteorological Office, will invite the guests to an excursion to view the observatory at Eskdalemuir. Among British men of science, the following have signified their intention of being present:—Sir George Darwin, Dr. Milne, Prof. Perry, Prof. Lamb, Prof. Knott, Prof. Love, Mr. Oldham, Dr. Shaw, and Dr. G. W. Walker.

EARLY on the morning of Saturday, July 1, a school of cetaceans, numbering apparently between fifty and sixty head, was stranded on the beach at Mount's Bay, near Penzance. Judging from an illustration in *The Daily Mirror* of July 3, these cetaceans may be identified with the black-fish or pilot-whale (*Globicephalus melas*), which derives its name of ca'ing whale from the habit of entering bays or inlets in schools, and thus becoming stranded, as in the present instance. Although such events are not uncommon in the Faröes and Shetlands, they are rare further south, and the Mount's Bay case appears to be unique. When the tide rose several of the stranded creatures succeeded in making their escape, but those unable to get away, if not already dead, were shot. Such stranded cetaceans are, we believe, Crown property, and application was accordingly made to the Board of Trade for permission to obtain specimens for the Natural History Museum. This being granted, a taxidermist was dispatched by the night mail on Monday with instructions to prepare skeletons and make preparations of some of the viscera. The largest specimen is stated to be about 25 feet long.

THE fact that on July 3 eleven aëroplanes crossed the Channel from Calais to Dover between 4 and 5.15 a.m. without a mishap is a striking proof—if proof be now needed—of the growing trustworthiness of men, motors, and machines. Accidents rarely occur now to experienced pilots, though their experience is small compared with what is considered necessary to make a first-class motorist. The oldest European pilot now flying has barely three and a half years to his credit, while it is well known that double that time scarcely suffices to produce a racing motorist of the highest rank. The eleven aëroplanes included eight monoplanes: Morane (Védrines), two Déperdussins (Vidart and Valentine), Sommer (Kimmerling), two Blériots (Lieut. Conneau and Garros), R.E.P. (Gibert), and Train (Train); and three biplanes: two Maurice Farmans (Renaux, with a passenger, and Barra), and Bristol (Tabuteau). It is worthy of remark that all the machines had Gnome motors except those of Gibert, who used a 60 horse-power R.E.P., Barra, who had a 70 horse-power Panhard, and Renaux, who had a 60 horse-power Renault. The occasion was the seventh stage of the circuit of Europe—from Paris *via* Liége, Spa, Liége, Utrecht, Brussels, Roubaix, Calais, Hendon, Calais, back to Paris again, a total distance of about 1025 miles. At the time of writing, omitting Valentine, Train, Barra, and Tabuteau, all the above mentioned have completed all the stages up to Hendon. The total times of the first four from Paris stand at present as follows:—Conneau, 51h. 43m. 5s.; Garros, 55h. 37m. 7s.; Vidart, 67h. 47m. 57s.; and Védrines, 70h. 20m. 20s.

AN archæological discovery of some interest has been made at Corfu. Excavations carried on by M. Versakis, the local Ephor of Antiquities, on the site of the ancient city (Palæopolis) of Korkyra, at the expense of the Greek Archæological Society, have resulted in the discovery of fragmentary sculptures belonging to an early temple. The most important fragments are those of a Perseus and Medusa group, which reminds one very forcibly of the metope sculptures of Selinus. The remains of colour on them are reminiscent of the brilliant painting of the early sculptures from the Athenian Akropolis now in the Parthenon Museum. There are other fragments of sculpture, all of interest. The discovery having been made during the stay of the Emperor William at the Achilleion this year, naturally attracted the eager attention of his Majesty, who at once consulted Prof. Dörpfeld, the director of the German Archæological School at Athens, with regard to carrying on the excavations himself. This has now been arranged, and Prof. Dörpfeld will carry on M. Versakis' work at the expense of H.I.M. Prof. Dörpfeld is of opinion that the remains belong to a temple of Apollo, dating to the seventh century B.C., probably. The resemblance of the style of its sculptures to that of the Selinuntine metopes is interesting in view of the fact that both Selinus and Korkyra were colonies of Corinth.

THE International Congress of Naval Architects and Marine Engineers, which is being held in celebration of the jubilee of the Institution of Naval Architects, was opened by the Duke of Connaught on Tuesday, July 4, many delegates of foreign Ministries of Marine and foreign societies being present in the assembly. The congress was to have been held last year, but was postponed in consequence of the death of King Edward. The council of the institution, to do honour to their guests from abroad, has made the following additions to the list of honorary members:—The King of Norway, the King of Spain, the King of Sweden, Prince Henry of Prussia, the Archduke Ferdinand, the Duke of Connaught, the Duke of Genoa, Prince Roland Bonaparte, Lord Rayleigh, Admiral Dewey, Admiral Togo, and Admiral Ijuin. An account of the proceedings of the congress will appear in a subsequent issue of NATURE.

THE fortieth meeting of the French Association for the Advancement of Science will be held this year at Dijon from July 31 to August 5, when M. Charles Lallemand will be the president. The sections of the association and their presidents are as follows:—M. E. Belot, mathematics, astronomy, geodesy, mechanics; M. Galliot, navigation (civil and military), engineering; Prof. Hurion, physics; Prof. Georges Lemoine, chemistry; Prof. Violle, meteorology and physics of the globe; Prof. Collot, geology and mineralogy; Prof. Quéva, botany; Prof. Bataillon, zoology, anatomy, physiology; Dr. Henri Martin, anthropology; Dr. Paul Courmont, medical science; Dr. Delherm, medical electricity; Prof. Grimaud, odontology; M. Lucien Magnien, agriculture; M. Auguste Chevalier, geography; M. Paul Razous, political economy and statistics; Prof. Beauvisage, pedagogy and teaching; Prof. Jules Courmont, hygiene and State medicine; Dr. Simon, archæology. Inquiries may be addressed to the secretary of the association, Dr. Desgrez, 28 rue Serpente, Paris.

THE third International Congress for Sanitary Dwellings is to be held this year, on the occasion of the International Hygiene Exhibition at Dresden, on October 2–7. The congress is to be divided into nine sections, as follows:—Group A: *General.*—Section i. Town-planning (building, forms of country settlement, garden cities, width of streets, height of building). ii. Construction of buildings (planning, distribution of space, building material, foundations, basement, kitchens, lavatories, floors and ceilings, staircases, lifts and roofs). iii. Internal arrangements (lighting, heating, ventilation, furnishing). iv. Sanitation (cleaning, removal of refuse, disinfection). Group B: *Dwelling Houses.*—v. Dwelling houses in towns. vi. Dwelling houses in the country. Group C: *Special Kinds of Dwellings.*—vii. School buildings, boarding-schools, prisons, hotels, lodging-houses, hospitals, convalescent homes, baths, churches, theatres, and other public buildings. viii. Work-rooms and workshops, means of communication and transit (railways, tramways, ships, vehicles, &c.). Group D: ix. Legislation, executive, statistics, &c. Prof. Renk is the president of the congress, and Dr. Hopf the general secretary, and all inquiries should be addressed to him at Dresden, Reichsstrasse, 4. Other communications and money-orders should be addressed: Kongresskanzlei, Zimmer 156, neues Rathaus, Dresden.

So far as is at present known, no fresh cases of plague among the rats have been discovered in the last few days at the riverside wharves at Wapping and Shadwell (see NATURE, June 29, p. 592). *The Times* special correspondent in the issue of June 28 pleads for an organised inquiry into the incidence of plague among the rats in England. He points out that in East Anglia, where plague was present last September, no action had been taken by several of the rural district councils, and that in London only spasmodic attempts at rat destruction have been undertaken. He also condemns as unwise the attitude of the Local Government Board in attempting to suppress knowledge of these recurring outbreaks of plague among the rats. No other country has so much at stake as Great Britain, with her vast carrying trade, and a persistent, elaborate, and prolonged inquiry into the radius of rat-infection is urgently called for.

THE issues of *Travaux de Soc. Imp. des Naturalistes de St. Pétersbourg—C.R. des Sciences* from January to March contain several articles on various groups of invertebrates, for the most part in Russian, notably two by Mr. K. Derjugin on the scientific results of the cruise of the schooner *Alexander Kowalevsky* in the Kola-Fjord during 1908–9.

To the *Sitzungsberichte* of the Vienna Academy of Sciences for December, 1910 (vol. cxix., part i.), Mr. J. Tandler contributes an important memoir on the pectoral muscles of mammals, based on MS. left at his death by the late Dr. E. Zuckerkandl. The anatomy and relationships of these muscles are described in representatives of the various orders, from the opossum to the gorilla and man.

IN reference to the paragraph on African dinosaurs on p. 390 of NATURE of May 18, Mr. F. A. Lucas writes to say that the longest rib of a dinosaur from the western United States, described in 1904 by Riggs under the name of *Brachiosaurus altithorax*, measures 2·74 m., or somewhat longer than the corresponding bone of the African species. The length of the femur is 2·03 m., and that of the humerus 2·04 m. The latter is a little less than the length of the African humerus, but serves to show that the femur is not necessarily the longest of the limb bones. In Mr. Lucas's opinion Brachiosaurus and the African dinosaur may prove to be related.

THE migration of the godwit from eastern Siberia to New Zealand forms the subject of an article by Mr. R. W. Reid in the July number of *Chambers's Journal.* The birds leave the extreme north of New Zealand early in April, and reappear usually in the first weeks of October; and they appear to spend a couple of months in the far north, four months in travelling, and the remaining half of the year in their southern home. They thus enjoy two summers in succession. When they arrive in New Zealand the godwits are in their winter plumage, but those which remain when their fellows fly north assume the brilliant summer dress, although they never breed. These non-migrating birds thus wear a summer livery in winter. It would be interesting to ascertain whether the Antarctic affords suitable breeding-grounds for the species.

MUSK-RATS (genus Fiber) form an exclusively North American group of rodents, with a distribution extending from the neighbourhood of Bering Strait to Arizona and the Gulf of Mexico. With such a range, it is remarkable that they have not hitherto been detected in north-eastern Asia, either in the living or fossil condition. Full details of their taxonomy, distribution, habits, and commercial importance are given by Mr. N. Hollister in a memoir published by the U.S. Department of Agriculture as No. 32 of the North American Fauna. The typical species is divisible into a number of local races, but the Newfoundland musquash (*F. obscurus*) is recognised as a distinct species on account of its inferior size, relatively large hind feet, dark colour, and small and weak skull and teeth. A form from a small area on the coast of Louisiana is likewise ranked as a species (*F. rivalicius*), although it differs from the typical *F. zibethicus* mainly by its somewhat inferior dimensions, duller colour, and darker under-parts. Three extinct species are recognised. In spite of incessant pursuit for the sake of their fur, which is steadily increasing in value, musk-rats continue to hold their own, and, according to the author, will probably become in the future the chief American fur-producer.

INHERITANCE of heterostylism and colour in *Primula sinensis* have provided the subject of extensive experiments by Mr. R. P. Gregory, who presents his latest results in *The Journal of Genetics* (vol. i., No. 2). Colour has to be considered independently for the flowers and stems; when absent from the flowers they are white, and when absent from the stems they are green. Colour may also be distinguished as full or pale. Full-coloured flowers are only produced on deeply coloured stems, although in the horticultural class "Sirdar," where the petals are full-coloured but the pigment occurs in dots, the stems are green. Full colours are dominant to pale; magentas are dominant to reds, and both colours to blue; whites may be dominant or recessive to colours.

A MORE than ordinary amount of critical investigation has been undertaken by Dr. A. S. Hitchcock and Miss A. Chase in the compilation of the monograph on North American species of Panicum, published as vol. xv. of the Contributions from the United States National Herbarium, as may be surmised from the list of herbaria consulted, and is confirmed by examination of the details supplied. The authors take a restricted view of the genus, which is founded on the species *Panicum miliaceum.* In addition to the section of Eu-Panicum, under which seventy-five species are collected, a small subgenus Paurochætium with six species, and a large subgenus Dichanthelium, comprising 110 species, are segregated. The two larger sections are again subdivided into groups named after a leading species. Members of the Dichanthelium section are characterised by distinct vernal and autumnal habits.

The question having been raised whether the timber from teak plantations is as strong as that from natural forests, specimens from trees grown in Burma were subjected to a series of tests, with the results recorded by Mr. R. S. Pearson in Forest Bulletin No. 3 published by the Government of India. The samples were, of course, similar in dimensions, and care was taken to get them as uniform as possible with respect to moisture content. Only in the case of transverse strain did the timber of natural-grown teak give a higher coefficient, and then the difference was small enough to be negligible for practical purposes. Another Bulletin (No. 2), issued with the former, provides a set of diagrams and curves, prepared by Mr. F. A. Leete, to show the relation between age, girth, number of stems, and height of teak trees in fully stocked plantations. The data may be used to determine whether any given area is suitably stocked or if thinning is required.

In *La Geographie* for April M. C. Rabot summarises his own work and that of others relating to the superior limits in altitude of forest trees in Scandinavia, and comes to the conclusion that the retreat of these upper limits is to be attributed to climatic variation or, more exactly, a lowering of the summer temperature, which has been estimated at 2·5° C.

In the Transactions of the Royal Society of Canada Dr. W. Bell Dawson describes in general terms the scope of the investigations carried on by the Tidal Survey of Canada. An important portion of the work has been the establishment of local bench-marks and the determination of their relation to mean sea-level, since no general system of levels yet exists in the country. A number of these have now been fixed, and are described in a recent (1906) report of the marine department, but their connection by lines of precise levelling is still wanting.

Messrs. S. Nakamura and K. Honda contribute a lengthy paper to the Journal of the College of Science at Tokio University on seiches in some lakes of Japan. Starting with a Sarasin limnimeter, a simpler type of portable instrument was found desirable, and each of the authors produced one which was found to be well suited to the investigation in hand. Large-scale records of the curves obtained with these instruments are given in facsimile, and these show the very marked oscillations of the water set up by violent thunderstorms passing over the lake while the record was being taken.

In the *Arkiv för Matematik, Astronomi och Fysik* of Stockholm, Band 6, No. 40, Mr. O. A. Åkesson puts forward a method for determining the direction of ice-drift in the neighbourhood of the Pole. Supposing such drift to be rectilinear and uniform, he utilises four altitudes of the sun taken in pairs at about six hours' interval, as long a period as practicable separating the first and last pair. The Greenwich times of the observations are supposed to be known, and, following the method employed by Prof. Charlier, the position of the first point and the direction and rate of drift are obtained. An example from the voyage of the *Fram*, when ice-bound from February, 1893, to August, 1895, is given in illustration of the method.

At a meeting of the Research Department of the Royal Geographical Society, Dr. Strahan presented the fourth report on the investigation of British rivers, which dealt with the Exe, the Creedy, and the Severn. Gauge readings and discharges had been taken frequently, and an interesting determination of the bottom-load moved by the Exe in each of the past seven years was included. The rainfall has also been studied to obtain the ratio of the run-off for the river system and for different tributaries. This most important investigation can only advance slowly on account of the lack of local observations having any considerable continuity and being satisfactorily comparable. Even under the present arrangements, it is difficult to ensure brief flood waves being adequately recorded at all stations, but the results testify the importance of the inquiry and the need for continuing it on as wide a basis as possible.

The meteorological charts for July issued by the Meteorological Committee contain, *inter alia*, timely and useful notes on the cyclonic storms of the Indian Ocean. During that month the south-west monsoon dominates the weather conditions over the Bay of Bengal and the Arabian Sea, and storms over the head of the bay are of comparatively frequent occurrence; the force of the monsoon in the Arabian Sea attains at times thirty to forty-four miles an hour. In the South Indian Ocean cyclonic storms are (so far as available observations show) practically non-existent in July; only one trustworthy storm track is shown there on the chart during a 38-year period. The interesting synoptic weather charts over the North Atlantic for June 8–14 show that a cyclonic area which was formed off Newfoundland on June 11 moved steadily eastward, and at the close of the period was beginning to influence the weather on our extreme western and south-western coasts.

An interesting contribution to *Symons's Meteorological Magazine* for June, by Mr. R. C. Mossman, now attached to the Argentine Meteorological Office, refers to the probable rainfall in the north-east of England during the present summer. On comparing the rainfall at Cordoba for the first quarter of the year for the thirty-three years 1878–1910 with that of the north-east of England for the third quarter, it is seen that the values are generally the reverse of each other, *i.e.* when the rainfall at Cordoba is in excess of the normal during the first quarter, it is in defect over the north-east of England in the third quarter, and *vice versa*. During the first quarter of this year the rainfall at Cordoba was only 46 per cent. of the normal. So far as these statistics go, therefore, there is a distinct suggestion that the present summer (July to September) will have a rainfall in excess of the normal over the north-east of England.

The summary of the weather for the first six months of the present year, which has just been issued by the Meteorological Office, shows that the mean temperature was slightly in excess of the average in all parts of the United Kingdom, taking the period as a whole. The absolute highest temperature in any district during the six months was 84°, in the north-east of England, and 80° has been exceeded in every district except in the north of Ireland and in the Channel Islands, whilst the lowest temperatures are below 20° in every district except in the Channel Islands, the absolutely lowest reading being 11°, in the east of Scotland. The largest aggregate rainfall for the six months January to June inclusive is 24·02 inches, in the north of Scotland, which is 0·58 inch more than the average; but this is the only district with an excess of rain except the east of England, where the aggregate was 10·33 inches and the excess 0·15 inch. The smallest aggregate rainfall in any district is 8·31 inches, in the Midland counties, where the deficiency for the six months amounts to 3·30 inches. The greatest deficiency is in Ireland, amounting to 3·97 inches in the north and 3·88 inches in the south. In the south-east of England, which includes the London area, the aggregate rainfall was 9·97 inches, which is 1·38 inches fewer than the average. The greatest number of rainy days is 106, in the north of Scotland, and the least 73, in the Midland counties. The total duration of sunshine was nowhere very different from the average; there was an excess in all districts except in the north-east of England, the Midland counties, and the Channel Islands, but the deficiency nowhere exceeded twenty hours. The rainfall for the first month of summer was generally in excess of the average; but the difference from the normal was nowhere very great except in the north-east of England, where the excess amounts to 2·20 inches. The duration of bright sunshine for June was generally in excess of the normal. At Greenwich the mean temperature for June was 60·8°, which is 0·5° above the average of the previous sixty years; the first half of the month was much warmer than the latter half, and the rain during the latter half was very much heavier; the aggregate for the month was 0·1 inch more than the normal, whilst the duration of bright sunshine was about twenty-five hours more than usual.

SOME interesting photographs are described by M. Flammarion in the June number of *L'Astronomie*. Apropos of Prof. R. W. Wood's recent experiments in photographing the lunar surface in ultra-violet light, M. Flammarion shows pictures of ordinary objects taken with the sun's invisible radiations, infra-red, and ultra-violet. In one set, taken in full sunlight with the less refrangible rays, white trees are seen projected against a dead-black sky, giving the appearance of a nocturnal snow scene. Another pair of photographs, one ordinary and one ultra-violet, are simultaneous photographs of a man standing; his shadow, very pronounced in the ordinary photograph, has disappeared, through lack of contrast, in the second. But perhaps the most striking pictures are a similar pair in which the camera was pointed towards a landscape so that a part of the latter is seen through a glass window. In the ultra-violet picture the window and the landscape beyond have both disappeared, the window-glass being entirely opaque to the shorter radiations solely transmitted by the screen and the quartz objective.

As a preliminary to the study of the magnetic properties of some slightly magnetic alloys, Mr. H. C. Hayes, of the Jefferson Physical Laboratory of Harvard University, has investigated the errors to which the cooling curves taken in the metallurgical study of an alloy are subject. As these errors are obviously greater the more rapid the cooling, Mr. Hayes has constructed a new crucible which allows the process to be accelerated at will. It is of steel, and to prevent contamination of the melt is lined with a thin coating of lime, which is applied in a special way. The crucible and its contents can be quickly transferred from the furnace to a tank of water. Using an Einthoven string galvanometer with thermo-junctions of copper-constantan, the author finds that with the usual arrangement of the couple in a protecting tube of quartz or porcelain the lag of the thermo-junction behind the temperature of the melt may, during a rapid cool, exceed 400° C. By using a copper tube deposited electrolytically on the end of the constantan wire, and protecting it by means of a thin coating of lime, he finds that the lag is reduced to a very small quantity, even for the most rapid cooling curves.

A COPY of a report on the analysis of potable spirits by the Government analyst for Western Australia has reached us. Its chief feature is a table setting out in detail the analytical results obtained in the examination of eighty-seven specimens of whisky, of known origin and age, selected from distilleries and other places in Scotland. The author considers, in reference to the evidence given before the recent Royal Commission on Whisky, that there is really less difficulty than was supposed in forming analytical standards for distinguishing between various classes of whisky, namely, "pure malt, pot still" whisky, "grain, patent still" whisky, and "blended" whisky, a mixture of the two. He suggests that definitions should be based, not upon any one constituent, but upon three taken conjointly, the furfural, esters, and higher alcohols being the three chosen. Further, not only should the quantities of each of these reach a stipulated minimum, but the three should bear a certain proportional relation to one another. On these principles definitions are formulated for (1) pure malt pot-still whisky, and (2) for blends containing, respectively, not less than 75 and not less than 50 per cent. of the pure malt pot-still product. The actual figures proposed as standards presume that the particular analytical methods described are employed, and it is admitted that they would exclude some spirits from their proper classes, though the number would be few. There is nothing new in the principle of forming a judgment on the character of a spirit by considering all three of the constituents indicated; probably most alcohol analysts do it, and certainly some have done so for years past. The data now given, however, obtained as they are from a considerable number of whiskies all analysed under strictly similar conditions, will be very useful in any discussion of standard values, whether the particular limits suggested by the author are accepted or not. A similar series dealing with Irish whiskies would be valuable.

THE first part of the fifth volume of the Journal of the Institute of Metals has been received. The first section of the book, which runs to 423 pages, contains a full account of the annual meeting held on January 18 last, and reported in the issue of NATURE for January 26 (vol. lxxxv., p. 429). The report of the council for the year 1910 is included, and the presidental address by Sir Gerard A. Muntz, Bart., entitled "'The Reason Why': the Quest of the Institute of Metals," is printed in full. The second section is devoted to abstracts of papers relating to the non-ferrous metals and the industries connected therewith; while the third contains the Memorandum and Articles of Association and a list of members.

MESSRS. J. AND A. CHURCHILL have in preparation, for publication early next year, a new annual entitled "Who's Who in Science," to be edited by Mr. H. H. Stephenson, and to contain the names of leading representatives of science throughout the world, as well as statements of their chief works.

OUR ASTRONOMICAL COLUMN.

WOLF'S COMET, 1911*a*.—In No. 4508 of the *Astronomische Nachrichten* Prof. Max Wolf states that he rediscovered his comet, on June 20, on a plate taken for that purpose. The position, for 1855·0, was 18h. 43·7m., +13° 25′, at 12h. 4·9m. Königstuhl M.T., on June 19. 18h. 43·7m., +13° 25′, at 12h. 4·9m. Königstuhl M.T. The object has a stellar nucleus of magnitude 15, or brighter, lying eccentrically in an extremely faint nebulosity of 20″ diameter. According to M. Kamensky's ephemeris, the positions for July 6 and 14 are 18h. 31·9m., +15° 0·5′, and 18h. 24·5m., +15° 15′, respectively.